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While the invention has been described in terms of electronic circuitry, it will be apparent that mechanical, fluidic or other components may be used, and that other changes may be made in the combination and arrangement of the surge indicator and its method of operation without departing from the scope of the invention as hereinafter claimed.

We claim:

1. An indicator for a turbine engine comprising pressure sensing means positioned in a flow path of said engine and producing signals which are a function of the gas pressure oscillations therein, a band-pass filter connected to receive said signals and passing therethrough only the high frequency signal components characteristic of engine surge, a low-pass filter also connected to receive said signals and passing therethrough only the low frequency signal components indicative of the steady state pressure, means for producing from said low frequency signal components a triggering signal, and comparator means for comparing said high frequency signal components with said triggering signal and producing an output signal when the amplitude of said high frequency signal components exceeds the amplitudes of said triggering signal.
2. An indicator as in claim 1 in which said pressure sensing means comprises a first high response pressure transducer, and a second low response pressure transducer.
3. An indicator as in claim 2 in which the signals produced by said first transducer are fed to said band-pass filter, and the signals produced by said second transducer are fed to said low-pass filter.

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4. An indicator as in claim 1 in which said band-pass filter is tuned to pass therethrough signal components in the approximate range of 10 Hz to 250 Hz.

5. An indicator as in claim 1 in which the low frequency signal components passed through said low-pass filter are below about 1 Hz.

6. An indicator as in claim 1 in which said pressure sensing means is positioned in the fan duct airflow path of a turbofan engine.

7. An indicator as in claim 1 in which said means for producing a triggering signal is a function generator.

8. An indicator as in claim 7 in which said function generator produces a triggering signal which is constant at low amplitudes of said low frequency signal components, which increases linearly with intermediate amplitudes of said low frequency signal components, and which is a high constant value at high amplitudes of said low frequency signal components.

9. A method for determining the imminence of surge in a turbojet engine comprising the steps of producing signals indicative of the gas pressure oscillations which occur in a flow path of said engine, modifying said gas pressure oscillation signals by removing therefrom the frequency components which are not characteristic of imminent engine surge, developing from said gas pressure oscillation signals a steady state pressure signal, producing from said steady state pressure signal a triggering signal, and comparing said triggering signal with said modified gas pressure oscillation signals.

10. A method as in claim 9 and including the step of generating an output signal indicative of the imminence of surge in said engine when said modified gas pressure oscillation signals exceed said triggering signal.

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